DRAFT
TXDOT RIGHT-OF-WAY
FIELD SAMPLING PLAN

Prepared for

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International Paper Company

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LIST OF ACRONYMS AND ABBREVIATIONS

Abbreviation	Definition
Anchor QEA	Anchor QEA, LLC
AOC	Administrative Order on Consent
COC	chain-of-custody
DGPS	differential global positioning system
dw	dry weight
FL	Field Lead
FSP	Field Sampling Plan
GPS	global positioning system
HASP	Health and Safety Plan
I-10	Interstate Highway 10
Integral	Integral Consulting Inc.
IPC	International Paper Company
kg	kilogram
MIMC	McGinnes Industrial Maintenance Corporation
ng	nanogram
PRG	preliminary remediation goal
QA	quality assurance
QA/QC	quality assurance and quality control
QC	quality control
RI/FS	Remedial Investigation and Feasibility Study
ROW	Right-Of-Way
Site	San Jacinto River Waste Pits Superfund Site
SOP	standard operating procedure
TCEQ	Texas Commission on Environment Quality
TCRA	time critical removal action
TEQ	toxicity equivalent
Tract	Virgil C. McGinnes, Trustee tract
TXDOT	Texas Department of Transportation
UAO	Unilateral Administrative Order
USEPA	U.S. Environmental Protection Agency

1 INTRODUCTION

This document presents the Field Sampling Plan (FSP) prepared on behalf of McGinnes Industrial Maintenance Corporation (MIMC) and International Paper Company (IPC) for a focused soil sampling effort on a right-of-way (ROW) owned by the Texas Department of Transportation (TxDOT) in Harris County, Texas (Figure 1). The ROW is adjacent to Interstate Highway 10 (I-10) and to the area referred to as the Virgil C. McGinnes, Trustee tract (Tract), which is part of the San Jacinto River Waste Pits Superfund Site (the Site). This FSP was prepared by Anchor QEA, LLC (Anchor QEA) on behalf of MIMC and IPC. Subject to obtaining access to the ROW from TxDOT, Anchor QEA is planning to implement the sampling event as soon as possible after approval of the work plan.

The Tract is located immediately north of the I-10 Bridge on the western bank of the San Jacinto River. The Tract was used for approximately an eight month period of time in 1965 and 1966 for the disposal of paper mill waste sludge. The waste was reportedly brought to the Tract by barges from which the waste was pumped into the surface impoundments on the Tract (TCEQ and USEPA 2006).

MIMC and IPC have entered into an Administrative Order on Consent (AOC) to perform an early response action, referred to as a TCRA, for source control and Site stabilization. USEPA has also issued a Unilateral Administrative Order (UAO) to MIMC and IPC that provides for the performance of a remedial investigation and feasibility study (RI/FS) of the Site. The soil sampling discussed in this FSP is to be performed in connection with obtaining access from TxDOT to a portion of the ROW in order to construct an access road and equipment laydown area that will allow vehicular and personnel access to and egress from the Site during implementation of the TCRA and the RI/FS. The FSP provides for the collection of surface and subsurface soil samples in the TxDOT ROW on the north and south sides of the I-10 Bridge, within the preliminary RI/FS Site perimeter (Figures 1 and 2). As shown on Figure 1, these TxDOT ROW soil samples will be collected on a grid pattern that is consistent with the grid pattern that was developed to determine the potential nature and extent of contamination in the San Jacinto River, as part of the RI/FS and approved by USEPA (Anchor QEA, LLC and Integral Consulting Inc., 2010). Figure 2 shows where the sample locations are in relation to the proposed access road and laydown area. The three subsurface soil sampling locations shown on Figures 1 and 2 (TxDOT004, TxDOT005, and

TxDOT012) were chosen by TxDOT with a request for discrete surface samples (0-12 inches) and subsurface samples (48 – 60 inches). Additional soil sampling and analyses are planned throughout the RI/FS project area as part of the RI/FS process, including 20 soil/sediment samples from intertidal areas that are adjacent to the TxDOT right-of-way, as shown in Figure 3. ~~These samples are being collected in May, 2010.~~ Some of the RI/FS sample stations are being relocated or abandoned during sampling efforts because of field obstacles, such as concrete aprons and rip rap to protect the shoreline and bridge, through an approval process with EPA. The final number of stations and locations may vary from those shown in Figure 3.

This FSP will be implemented in a manner consistent with the Sediment Quality Assurance Project Plan and RI/FS Work Plan prepared for the RI/FS (Integral Consulting Inc. and Anchor QEA, LLC, 2010). Specifically, the RI/FS Work Plan contains information regarding Site background, existing data and conditions, and quality assurance and quality control (QA/QC) procedures and processes that will be followed during sampling work. This FSP incorporates that information and those procedures by reference, and provides additional task-specific information as pertinent.

1.1 Objectives and Overview

The primary purpose of this sampling effort is to document conditions in the ROW for purposes of an access agreement with TxDOT. The access agreement will permit MIMC and IPC to construct and use a road and laydown area on the ROW for purposes of RI/FS and TCRA activities. The data to be generated under this FSP will, among other things, be used to determine the impact, if any, of disposal activities associated with the Tract on TxDOT's ROW and associated utility easements shown in Appendix A.

The scope of the soil sampling to be performed as part of this FSP can be summarized as follows:

- Collection of soil samples from 12 locations within the TxDOT ROW and the RI/FS preliminary Site perimeter (Figures 1 and 2).

- Analysis of samples from each location from 0-12 inches below grade for dioxins and furans (as TEQs), and the other primary and secondary contaminants of concern (COC) identified for the Site in the RI/FS process. A full listing of those COC is provided in Table 2. All analytical chemistry sampling results will be reported on a dry weight basis.
- Analysis of composite samples from 48~~12~~ inches to 60 inches for dioxins and furans (as TEQs), and the other primary and secondary contaminants of concern (COC) identified for the Site in the RI/FS process, from three of the surface sample locations (TxDOT004, TxDOT005, and TxDOT012), selected by TxDOT (Figures 1 and 2)~~,~~.

This information will be analyzed in conjunction with the twenty (20) human health and ecological exposure sediment sample results being obtained as part of the RI/FS. The locations of these RI/FS samples are shown in Figure 3. Some of the RI/FS sample stations are being relocated or abandoned during sampling efforts because of field obstacles, such as concrete aprons and rip rap to protect the shoreline and bridge, through an approval process with EPA. The final number of stations and locations may vary from those shown in Figure 3.

~~Sampling for dioxins and furans is proposed because they are the primary constituents of concern at the Site. All soil samples will be analyzed and TEQs for each surface soil sample will be compared to the commercial/industrial soil PRGs for dioxins in USEPA's Draft Recommended Interim Preliminary Remediation Goals (PRGs) for Dioxin in Soil at the CERCLA and RCRA Sites (USEPA 2009). This value is 950 nanograms/kilograms (ng/kg) dry weight (dw), based on non-cancer effects. This value is considered conservative and appropriate because the following exposure assumptions among others were used by USEPA in developing this value:~~

- ~~An averaging time of 70 years~~
- ~~225 days per year of exposure~~
- ~~Exposure duration of 25 years~~
- ~~Full absorption from gastrointestinal tract~~

~~The assumptions listed above indicate that the PRG of 950 ng/kg in soil is protective against non-cancer risks associated with dioxin exposure of a worker spending 225 days per year on a~~

~~site for 25 years, and that all of the dioxin associated with the soil is bioavailable and absorbed. This value also corresponds to a level protective of workers against cancer.~~

This FSP describes the project organization and field methods that will be used to collect soil samples. Section 2 of this FSP describes the field procedures and sample packaging and shipping requirements that will be followed by the technical team during the field study. Section 3 summarizes field documentation and chain-of-custody (COC) procedures. Field data reporting and field custody procedures are discussed in Section 4.

1.2 Project Organization

MIMC and IPC have retained Anchor QEA to perform this FSP. Integral Consulting, Inc. will also be providing support for database administration and analytical laboratory coordination. The primary contacts for each organization, including USEPA oversight are provided in the following tables:

Title	Name	Contact Information
USEPA	Valmichael Leos	U.S. Environmental Protection Agency Region 6 1445 Ross Avenue Dallas, TX 75202-2773 (214) 665-2283 leos.valmichael@epa.gov
McGinnes Industrial Maintenance Corporation Project Manager	Andrew Shafer	McGinnes Industrial Maintenance Corp. 9590 Clay Road Houston, TX 77080 (713) 772-9100 Ext. 109 dshafer@wm.com
International Paper Company Project Manager	Philip Slowiak	International Paper Company 6400 Poplar Avenue Memphis, TN 38197-0001 (901) 419-3845 philip.slowiak@ipaper.com

The names and quality assurance (QA) responsibilities of key project personnel for Anchor QEA who will be involved in these sampling and analysis activities are provided below:

FSP Personnel Quality Assurance Responsibilities

Title	Responsibility	Name	Contact Information
Project Coordinator	Coordination of project information and related communications on behalf of IPC and MIMC	David Keith	Anchor QEA, LLC 2113 Government Street Building D, Suite 3 Ocean Springs, MS 39564 (228) 818-9626 dkeith@anchorqea.com
Anchor QEA Corporate Health and Safety Managers	Oversight of health and safety program for field tasks associated with RI/FS	David Templeton	Anchor QEA, LLC 1423 Third Avenue Suite 300 Seattle, WA 98101 (206) 287-9130 dtempleton@anchorqea.com
Field Lead Anchor QEA	Field data collection and implementation of the Health and Safety Plan in the field	Jason Kase	Anchor QEA, LLC 4208 Cherry Laurel Drive Pensacola, FL 32054 (850) 912-8400 jkase@anchorqea.com
Project Database Administrator Integral	Database development and data management	Dreas Nielson	Integral Consulting Inc. 411 First Avenue South Suite 550 Seattle, WA 98104 (206) 957-0351 dnielson@integral-corp.com
Project Laboratory QA Coordinator Integral	Completeness of QA documentation and procedures	Craig Hutchings	Integral Consulting Inc. 1205 West Bay Drive NW Olympia, WA 98502 (360) 705-3534 chutchings@integral-corp.com

1.2.1 Laboratories

The following responsibilities apply to the project manager and QA (quality assurance) manager at the analytical laboratories used for this task.

The laboratory project manager is responsible for the successful and timely completion of sample analyses, and for performing the following tasks:

- Ensure that samples are received and logged in correctly, that the correct methods and modifications are used, and that data are reported within specified turnaround times.
- Review analytical data to ensure that procedures were followed as required in the FSP, the cited methods, and laboratory standard operating procedures (SOPs).
- Keep the task QA coordinator apprised of the schedule and status of sample analyses and data package preparation.
- Notify the task QA coordinator if problems occur in sample receiving, analysis, or scheduling, or if control limits cannot be met.
- Take appropriate corrective action as necessary.
- Report data and supporting QA information as specified in this FSP.

The laboratory QA manager is responsible for overseeing the QA activities in the laboratory and ensuring the quality of the data for this project. Specific responsibilities include the following:

- Oversee and implement the laboratory's QA program.
- Maintain QA records for each laboratory production unit.
- Ensure that QA and quality control (QC) procedures are implemented as required for each method and provide oversight of QA/QC practices and procedures.
- Review and address or approve nonconformity and corrective action reports.

Coordinate response to any QC issues that affect this project with the Laboratory Project Manager.

2 SAMPLING PROCEDURES

The following sections describe the detailed procedures and methods that will be used during this sampling event, including sampling procedures, recordkeeping, sample handling, storage, and field QC procedures. All field activities will be conducted in accordance with the Health and Safety Plan San Jacinto River Waste Pits Superfund Site (HASP; Anchor QEA 2009). Station locations and sampling matrices are outlined in Table 1.

2.1 Schedule

This sampling event will occur as soon as this work plan is approved, TxDOT grants access to the ROW for purposes of performing the sampling, and weather and other uncontrollable forces, such as tides, winds, etc. allow for access. Laboratory analytical work will be expedited so that preliminary results are available within one week of sampling and final laboratory results will be available within two weeks. Data validation will occur approximately two to three weeks after the final laboratory report is provided.

2.2 Field Survey and Sampling Methods

Soil chemistry samples will be collected at station locations equally spaced along the TxDOT ROW (Figure 1). The following sections describe the sampling equipment, sampling methods, sample handling, and shipping.

2.2.1 Sampling Equipment and Supplies

Field equipment and supplies include sampling equipment (i.e., hand auger), utensils, decontamination supplies, sample containers, coolers, shipping containers, log books and forms, personal protection equipment, and personal gear. Protective wear (e.g., gloves) is required to minimize the possibility of cross-contamination between sampling locations. Additional information on protective wear for this project is provided in the HASP.

Sample jars, preservatives, coolers, and packaging material for the samples will be supplied by the analytical laboratory. Details on the numbers and type of sample containers are provided in Table 2 of this FSP. The Field Lead (FL) and field personnel in charge of sample handling in the field will use a sample matrix table (Table 1) as a QC check to ensure that all samples have been collected at a given station. This table includes the total number and type of sample jars required for each analysis at each sampling station.

Commercially available, pre-cleaned jars will be used for the samples, and the testing laboratories will maintain a record of certification from the suppliers. The bottle shipment documentation will include batch numbers. With this documentation, jars can be traced to the supplier, and bottle-wash analysis results can be reviewed. The bottle-wash certificate documentation will be archived.

Sample containers will be clearly labeled at the time of sampling. Labels will include the task name, sample location and number, sampler's initials, analyses to be performed, and sample date and time. Sample numbering and identification procedures are described in detail in Sections 3.3 and 3.4.

2.2.2 Sample Location Positioning

Latitude and longitude coordinates will be obtained at the locations where samples are collected. A differential global positioning system (DGPS) will be used to document the sample collection locations. The standard projection method to be used during field activities is Horizontal Datum: NAD1983_StatePlane, Texas South Central, FIPS 4204, U.S. feet. The positioning objective is to accurately determine and record the positions of all sampling locations to within ±2 m. Proposed soil sampling location coordinates are provided in Table 1. If field conditions permit, actual sample locations should fall within a 5 foot radius of the planned positions. In all cases the actual sample location coordinates should be recorded at each station.

The DGPS unit consists of a global positioning system (GPS) receiver and a differential receiver located at a horizontal control point. At the control point, the GPS-derived position is compared with the known horizontal location, offsets or biases are calculated, and the correction factors are telemetered to the GPS receiver. Positioning accuracies on the order of ±1 to 3 m can be achieved by avoiding the few minutes per day when the satellites are not providing the appropriate quality of signal. The GPS unit provides the operator with a listing of the time intervals during the day when accuracies are decreased. Avoidance of these time intervals permits the operator to maintain better positioning accuracy.

2.2.3 Soil Sample Collection

The equipment and procedures that will be used to collect surface soil samples are discussed in this section. The twelve locations that will be sampled (Stations TxDOT001 through 012) are shown on Figure 1 and are listed in Table 1.

Surficial and subsurface soil samples (0 to 12 inches - 0-30 cm) will be collected with a hand or bucket auger. A hydraulic push probe (e.g. Geoprobe) will be utilized to collect continuous soil cores for stations that require ~~12 inch to 60 inch composite~~subsurface samples (48 – 60 inches). If there is a significant vegetative cover, the vegetative material will be removed prior to sampling. The thickness of the vegetative cover will be noted in the field log book. The Anchor QEA FL will ensure adequate penetration depth is attained. A stainless-steel ruler or tape measure will be used to determine that the sampling criterion for adequate penetration depth has been met and that the correct thickness and interval of soil has been removed. A decontaminated stainless-steel spoon will be used to collect the soil from the auger and/or geoprobe core. Soil will be placed into a decontaminated stainless-steel bowl and homogenized using a stainless-steel spoon or other stainless-steel mixing implement until the soil attains a visually uniform color and texture.

Soil subsamples will then be removed for dioxin/furan analyses by placement in labeled, laboratory-cleaned sample containers with Teflon-lined lids (Table 2). Each sample container will be clearly labeled with the task name, sample number, type of analysis to be performed, date and time, and initials of person(s) preparing the sample. Immediately after sample containers are filled, the samples will be stored on ice (4±2°C).

2.2.4 Equipment Decontamination

Before sampling begins at a location, the sampling equipment will be scrubbed with a standard detergent (e.g., Alconox® or Liquinox®), rinsed with distilled water and air-dried. Equipment used for compositing the soil samples (i.e., stainless-steel bowls and spoons) will follow the same basic decontamination sequence, except that the final rinse will be with laboratory-grade deionized water. After cleaning, the decontaminated sample homogenizing equipment will be covered with aluminum foil to protect it from possible contamination.

All non-dedicated sampling equipment that comes into contact with the soil samples (e.g., hand auger, stainless-steel bowls, and utensils) will be decontaminated prior to use and between samples. Non-dedicated sampling equipment will be decontaminated according to the procedures outlined above. If samples are collected that include obvious oily contamination, the sampling equipment used to collect and process them will be decontaminated using a separate decontamination station dedicated to heavily impacted equipment. This equipment will be wiped with a solvent following the initial decontamination, and it will undergo a second decontamination sequence using the standard decontamination procedures used for the non-oil-impacted equipment.

2.3 Field Quality Control Samples

Field QC samples will be used to assess sample variability and evaluate potential sources of contamination. The types of QC samples that will be collected are described in this section. The estimated numbers of field QC samples to be collected is listed in the sample matrix table (Table 1). If QC problems are encountered, they will be brought to the attention of the Project Manager. Corrective actions, if appropriate, will be implemented to meet the task's data quality indicators.

Field QC samples will include field split samples, standard reference materials, equipment filter wipe blanks, and filter blanks. The following QC samples will be collected in the field and analyzed by the analytical laboratory:

- Field split samples will be collected and analyzed to assess the variability associated with sample processing and laboratory variability. Blind field split samples will be collected at a minimum frequency of 1 field split sample per 20 soil sampling stations. Samples will be assigned unique numbers and will not be identified as field splits to the laboratory. A field split sample will be collected at every twentieth station.
- Standard reference materials are samples of known concentration that have typically undergone multi-laboratory analyses using a standard method. Reference materials

provide a measure of analytical performance and/or analytical method bias. Standard reference materials for the dioxin/furan analyses will be provided by the laboratory.

- Equipment filter wipe blanks will be collected to help identify possible contamination from the sampling environment or from the sampling equipment (e.g., hand auger, spoons, and bowls). Equipment filter wipe blanks will be generated at approximately 5 percent of the sampling stations at a minimum. All equipment wipe samples will be clearly noted in the field log (e.g., sample identifier, equipment type, date and time of collection, analysis, and filter lot number).
- A minimum of one field equipment filter wipe blank will be collected for each kind of sampling equipment used for chemical analyses. A filter wipe blank will be collected at every twentieth station. One equipment wipe will be prepared for each analysis type. If multiple analyses are requested, separate sets of filter wipes will be collected for each analysis type and for each kind of sampling equipment used, as the equipment can be wiped down only once for each piece of filter paper. This ensures that the filter wipe result represents the most conservative estimate of cross contamination for each analysis type. (Note: Filter papers must be stored in their original box, wrapped carefully in three layers of aluminum foil, or contained in a glass jar. The filter paper box cannot be stored in plastic bags or containers.)
- Filter blanks are prepared in the field to evaluate potential background concentrations present in filter paper used for the equipment filter wipe blank. Filter blanks will be collected at a minimum frequency of one for each lot number of filter papers used for collecting the equipment wipe blanks.

2.4 Sample Packaging and Transport

As mentioned above, sample coolers and packing materials will be supplied by the analytical laboratories. Individual sample jars will be labeled and placed into plastic bags and sealed. Samples will then be packed in a cooler lined with a large plastic bag. Glass jars will be packed to prevent breakage and separated in the cooler by bubble wrap or other shock-absorbent material. Ice in sealed plastic bags will then be placed in the cooler to maintain a temperature of approximately 4°C (±2°C). When the cooler is full, the COC form will be placed into a zip-locked bag and taped to the inside lid of the cooler. A temperature blank will be added to each cooler. Each cooler will be sealed with two COC seals, one each on the front and side of the cooler. Labels indicating "This End Up "with an arrow and "Fragile" will be attached to each cooler.

The shipping containers will be clearly labeled (i.e., name of task, time and date container was sealed, person sealing the cooler, and company name and address) for positive identification. These packaging and shipping procedures are in accordance with U.S. Department of Transportation regulations (49 CFR 173.6 and 49 CFR 173.24). Coolers containing samples for chemical analyses will be transported to the laboratory by courier or overnight shipping service.

After the chemistry samples have been received by the laboratory, they will be stored under refrigeration (4±2°C).

2.5 Study-Derived Wastes

Any liquid or dry waste (e.g., decontamination liquids, contaminated boots, bibs, Tyvek™ suits, soils, paper towels, gloves, etc.) generated during sampling will be containerized and disposed of by a subcontractor specialized in hazardous waste removal. The subcontractor will be required to have, at a minimum, a waste management service that provides the following:

- Proper waste identification including full analytical capability
- Pick up and disposal of a broad range of hazardous wastes
- Safe and proper transportation
- Environmentally sound treatment and disposal
- Regularly scheduled service visits with manifest and label preparation

3 FIELD DOCUMENTATION

The integrity of each sample from the time of collection to the point of data reporting must be maintained. Proper record-keeping and COC procedures will allow samples to be traced from collection to final disposition. Representative photographs will be taken of each type of sample material that is collected (e.g. sandy material, silty sand, soil, etc.).

3.1 Field Log Book

All field activities and observations will be noted in a log book. The field log book will be a bound document and may contain individual field and sample log forms (depending on the sampling activity). Information will include personnel, date, time, station designation, sampler, types of samples collected, and general observations. Any changes that occur during sampling (e.g., personnel, responsibilities, or deviations from the FSP) and the reasons for these changes will be documented. The log book will identify visitors (if any) to the ROW and the number of photographs taken at each sampling location. Each FL is responsible for ensuring that their respective field log book and all field data forms are correct. Requirements for log book entries will include the following:

- Log books will be bound, with consecutively numbered pages.
- Removal of any pages, even if illegible, will be prohibited.
- Entries will be made legibly with black (or dark) waterproof ink.
- Unbiased, accurate language will be used.
- Entries will be made while activities are in progress or as soon afterward as possible (the date and time that the notation is made should be recorded, as well as the time of the observation itself).
- Each consecutive day's first entry will be made on a new, blank page.
- The date and time, based on a 24-hour clock (e.g., 0900 a.m. for 9:00 a.m. and 2100 for 9:00 p.m.), will appear on each page.

In addition to the preceding requirements, the person recording the information must initial and date each page of the field log book. If more than one individual makes entries on the same page, each recorder must initial and date each entry. The bottom of the page must be signed and dated by the individual who makes the last entry.

Log book corrections will be made by drawing a single line through the original entry, allowing the original entry to be read. The corrected entry will be written alongside the original. Corrections will be initialed and dated and may require a footnote for explanation.

The type of information that may be included in the field log book and/or field data forms includes the following:

- Task name, task location, and task number
- Task start date and end date
- Weather conditions
- Name of person making entries and other field staff
- Visitors to the ROW, if any
- Station name and location
- Date and collection time of each sample
- The sample number for each sample to be submitted for laboratory analysis
- The sampling location name, date, gear, and sampling location coordinates derived from GPS
- Specific information on each type of sampling activity
- The sample number, date and time of collection, equipment type, and the lot number for the box of filter papers used for field QC samples
- Observations made during sample collection, including weather conditions, complications, and other details associated with the sampling effort
- Sample description (source and appearance, such as soil type, color, presence of anthropogenic material, and presence and type of biological structures, other debris, oil sheens, and odor)
- Soil penetration depth (nearest 0.5 cm) based on soil depth at the center of the excavation
- Any visible debris near any of the sampling locations
- Any surface vegetation that is removed from the sampling location prior to sampling
- The locations of any surface water runoff or seeps that are located near any of the sampling stations
- The number of photographs taken at the sampling location
- A record of health and safety meetings, updates, and related monitoring

- Any deviation from the FSP and reasons for deviation

In addition, a sampling location map will be updated during sampling and will be maintained throughout the sampling event. All log books must be completed at the time that any observations are made. Copies of all log books and forms will be retained by the technical team.

3.2 Chain-of-Custody Procedures

Samples are in custody if they are in the custodian's view, stored in a secure place with restricted access, or placed in a container secured with custody seals. A COC record will be signed by each person who has custody of the samples and will accompany the samples at all times. Copies of the COC will be included in laboratory and QA/QC reports.
At a minimum, the form will include the following information:

- Site name
- FL's name and team members responsible for collection of the listed samples
- Collection date and time for each sample
- Sample type (i.e., sample for immediate analysis or archive)
- Number of sample containers shipped
- Requested analyses
- Sample preservation information (if any)
- Name of the carrier relinquishing the samples to the transporter, noting date and time of transfer, and the designated sample custodian at the receiving facility

Anchor QEA's FL (or delegate) will be the designated field sample custodian for their respective sampling events and will be responsible for all sample tracking and COC procedures for the samples that their team collected in the field. The field sample custodian will be responsible for final sample inventory and will maintain sample custody documentation. The field sample custodian will complete COC forms prior to removing samples from the field. Upon transferring samples to the laboratory sample custodian (if a local laboratory is selected) or shipping courier (as appropriate), the field sample custodian will sign, date, and note the time of transfer on the COC forms. The original COC forms will be transported with the samples to the laboratories. All samples will be shipped to the testing laboratories in either coolers or shipping containers sealed with custody seals. Each laboratory will designate a sample custodian who will be responsible for receiving samples and documenting their progress through the laboratory analytical process. The sample custodian for each laboratory will establish the integrity of the custody seals upon sample arrival at the laboratory. The laboratory sample custodian will also ensure that the COC and sample tracking forms are properly completed, signed, and initialed upon receipt of the samples.

When the laboratory receives the samples, the laboratory sample custodian will conduct an inventory by comparing sample labels to those on the COC document. The custodian will enter the sample number into a laboratory tracking system by task code and sample designation. The custodian will assign a unique laboratory number to each sample and will be responsible for distributing the samples to the appropriate analyst or for storing samples at the correct temperature in an appropriate secure area.

3.3 Station Numbering

All stations will be assigned a unique identification code based on a designation scheme designed to suit the needs of the field personnel, data management, and data users. Station numbers will include “TxDOT” to indicate that the samples were taken from the TxDOT ROW. The letters will be followed by a number to identify the station position. An example station number and depth interval would be TxDOT001.

Station numbers will not be recorded on sample labels or COC forms to prevent analytical laboratories from seeing the relationships between samples and stations.

3.4 Sample Identifiers

Each sample from a given station will also have a unique label identifier. Sample identifiers will be established before field sampling begins and assigned to each sample as it is collected. Sample identifiers consist of codes designed to fulfill the following purposes: 1) to identify related samples (i.e., field split samples) to ensure proper data analysis and interpretation; and 2) to track individual sample containers to ensure that the laboratory receives all of the material associated with a single sample. To accomplish these purposes, each container is assigned a sample number and a tag number. These codes and their uses are described below:

- A sample identifier for each sample will be created as follows: the station number (e.g., TxDOT001), followed by a two-letter code for the kind of sample collected at a given location (SO = soil sample), and then followed by the depth interval (e.g. 0 – 12 (inches) or 48~~12~~ – 60 (inches)).
- Following the sample identifier, an alphanumeric identifier will follow, indicating sample type. "N" will designate normal samples; "D" will designate a homogenized split sample (e.g. TxDOT001-SO_0-12N).

For equipment filter wipe blanks, sequential numbers starting at 900 will be assigned instead of station numbers. For example, the first filter wipe blank for a soil sample collected with a stainless steel spoon and stainless steel bowl will be labeled as SOFW-901A (SO = soil, FW = filter wipe, A = hand auger).

4 FIELD DATA MANAGEMENT AND REPORTING PROCEDURES

During field operations, effective data management is critical to providing consistent, accurate, and defensible data and data products. Daily field records (a combination of field log books, field forms, if any, and COC forms) will make up the main documentation for field activities. Upon completion of sampling, field notes, data sheets (if any), and COC forms will be scanned to create an electronic record. Field data will be manually entered into the project database. One hundred percent of the transferred data will be verified based on hard copy records. Electronic QA checks to identify anomalous values will also be conducted following entry.

A draft data summary report will be provided to TxDOT within one week of MIMC and IP receiving the results of the final data validation. Final laboratory reports and data validation reports will be provided to TxDOT as attachments to the data summary report.

5 REFERENCES

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